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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/805,816      | 03/22/2004  | William T. Yost      | LAR 16406-1-CU      | 1060             |

23351 7590 09/23/2005

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
LANGLEY RESEARCH CENTER  
MAIL STOP 141  
HAMPTON, VA 23681-2199

EXAMINER

IMAM, ALI M

ART UNIT PAPER NUMBER

3737

DATE MAILED: 09/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

|                              |                                      |                             |  |
|------------------------------|--------------------------------------|-----------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/805,816 | <b>Applicant(s)</b><br>YOST |  |
|                              | <b>Examiner</b><br>Ali Imam          | <b>Art Unit</b><br>3737     |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>2/16/05</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5 and 8-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Davis et al. (US 2002/0188206 A1). Davis teaches in paragraphs [0084], [0090], [0092], [0102], [0106], [0134], and in Figs. 1, 8, 10, and 14, a process for measuring pressure buildup in one or more body compartments that encases muscular tissue (blood vessel network) comprising the steps of assessing a body compartment configuration; and identifying the effect of pulsatile components on at least one dimension of the body component. Davis further teaches that the pressure measurement means is an ultrasound transducer which inherently includes broadband transmit/receive capability in order to determine the compartment boundary and configuration of the blood vessel network.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 6, 7, and 13-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davis et al. (US 2002/0188206 A1) in view of Mignot (US 5,569,853). Davis teaches all the

Art Unit: 3737

limitations of the claimed subject matter except for mentioning specifically the means for mathematical manipulations of ultrasonic wave and means for capturing temporal reception of ultrasonic waves. Mignot teaches in col. 5, line 65 - col. 6, line 32 and in claim 1, means for mathematical manipulations of ultrasonic wave and means for capturing temporal reception of ultrasonic waves. Therefore, it would have been obvious to an ordinary skill in the art, at the time the invention was made to modify Davis's process, method, and apparatus for measuring pressure buildup in the blood vessels such that it includes means for mathematical manipulations of ultrasonic wave and means for capturing temporal reception of ultrasonic waves in order to minimize the number digital values to provide an enhanced image of the blood vessel network as taught by Mignot.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ali Imam whose telephone number is 571-272-4737. The examiner can normally be reached on Mon. - Th., 8:00- 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on 571-272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3737

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Ali Imam  
Primary Examiner  
Art Unit 3737

AI  
9/2/5